Stoves and stove-related methods. Some embodiments provide three-piece camping stoves configured for flat storage. Some stoves comprise two flexible and flat panels and a flat crosspiece. The panels define male couplers extending from the panels, female couplers, and crosspiece couplers. The female couplers define slots in the panels while the crosspiece defines panel couplers. Furthermore, the male and female couplers are configured to releasably couple with each other, as are the crosspiece and panel couplers. The panels can possess the same shape and/or the crosspiece couplers can be spaced apart from the panel edges. The female and male couplers can define two differing lengths while the male couplers can comprise in-plane extensions of the panels (define two differing lengths). Moreover, the panel couplers can comprise in-plane extensions of the crosspiece. Additionally, the widths of the panels and crosspiece can be the same.
FIG. 11

START

1102

OBTAIN SHEET METAL

1104

FORM SIDES

1106

STAMP SIDES

1108

FORM PIECE

1110

STAMP PIECE

1112

FORM POUCH

1114

STOW

1116

TRANSPORT

1118

EXTRACT

1120

ENGAGE 1ST COUPLER

1122

BOW OUT SIDES

A

1124

ENGAGE 2ND COUPLER

1126

RELEASE STOVE

1128

COUPLE SIDES

1130

INSERT PIECE

1132

RELEASE ASS'D STOVE

1134

USE STOVE

1136

REP?

B

END
STOVES, STOVE COMPONENTS, AND RELATED METHODS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to and is a non-provisional of U.S. provisional patent application No. 61/804, 627 filed on Mar. 23, 2013 by Kevin M. Bailey and titled Collapsible Lightweight Camping Stove the entirety of which is incorporated herein as if set forth in full.

BACKGROUND

[0002] Serious campers, hikers, mountain climbers, canoe- ers, rafters, kayakers, boaters, fishermen, hunters, bicyclists, motorcycle riders, and many others find themselves in need of cooking in remote locations. Moreover, like almost everyone else, these people enjoy a warm (or hot) meal. Yet, because they have limited carrying ability, they cannot carry a normal stove around with them. Even heretofore available camping stoves, while being smaller, often take up too much room, weigh too much, etc. to be carried conveniently. Long carrying distances aggravate this situation.

[0003] Furthermore, many heretofore-available camping stoves require several piece parts for their assembly. If even one becomes misplaced, the affected stove might be only partially functional. Indeed, one missing part can disable a large number of camping stoves. Combining two or more parts into one integral piece, of course, creates an even more unwieldy stove. Of course, broken or malfunctioning components create many of the problems that missing components cause.

SUMMARY

[0004] The following presents a simplified summary in order to provide an understanding of some aspects of the disclosed subject matter. This summary is not an extensive overview of the disclosed subject matter, and is not intended to identify key/critical elements or to delineate the scope of such subject matter. A purpose of the summary is to present some concepts in a simplified form as a prelude to the more detailed disclosure that is presented herein. The current disclosure provides stoves and related methods and more specifically, the current disclosure provides compact, lightweight, yet reliable stoves.

[0005] Embodiments provide light, reliable, and compact stoves. Stoves of the current embodiment are also easy to setup, simple to use, and durable. Stoves of these embodiments can weigh only 1.8 ounces (50 grams) and can be smaller than a typical trail map (when stowed). Such stoves are well suited for use on backpacking trips and a variety of other activities. These activities are much more enjoyable when the gear involved does not weigh down the participants. If so, the participants can go farther, see more things, and feel better at the end of the day and they participate in these activities. Indeed, many of these participants want to leave non-essentials behind, lose themselves in nature (or other environments, activities, etc.), and/or get away from it all—like it ought to be (in their opinion).

[0006] Moreover, stoves of the current embodiment can be so lightweight that they are essentially not noticeable in a backpack yet they provide a strong structure on which to cook heavy objects. Moreover, the curved sides of stoves of some embodiments provide a stable pot-stand. They have no moving parts and can be stowed in thin (small) pockets in many backpacks. Yet, these stoves provide fuel support, wind screening, and a pot-stand in simple and elegant manners.

[0007] Stoves of embodiments can burn solid fuel tablets. Accordingly, users of these stoves enjoy the benefits of using fuel tablets. For instance, by counting their fuel tablets, users can quickly know how much fuel they have left. They can be conveniently carried and can leave no ash, hot coals, cansisters, packages, etc. following their use. Thus, users need not carry any residue out with them and the risk of wild fires is diminished accordingly. Moreover, they burn at cold temperatures (even below 11 degrees Fahrenheit) and high altitude and can serve as fire starters in a pinch. Thus, they provide versatility without requiring a user to carry multiple (partially) redundant items. Stoves of some embodiments can hold popular alcohol burners used by many minimalist users. The denatured alcohol used in these burners can be found at many hardware stores. Likewise, the burners themselves can be found at many outfitters (both on and off-line). Thus, stoves of the current embodiment share many of the benefits of these alcohol burners (which can be clipped to the side of these stoves).

[0008] Furthermore, stoves of some embodiments are made from brushed, 301, stainless steel and have dimensions of 4.84 in. (length) x 2.87 in. (height) x 3.0 in. (width) when assembled. These 1.8 ounce stoves can accommodate pots of 3.5 inches and larger. Of course, larger and smaller stoves are provided by embodiments. Thus, stoves of the current embodiment can be used to boil water for sterilization and/or for addition to dehydrated meals as well as for other purposes. Some stoves can boil 16 ounces of water in 6-8 minutes using a single 14 gram Esbit® tablet (depending on ambient temperature, elevation, and/or the starting temperature of the water). Note that Vertex Outdoors, L.L.C of Austin, Tex. provides stoves of embodiments.

[0009] Some embodiments provide compact stoves. For instance, stoves of some embodiments comprise first and second panels and crosspieces. The panels define male, female, and crosspiece couplers wherein the male couplers are configured to be positioned at opposite ends of the stove and are in-plane extensions of the panels. The female couplers, furthermore, define slots in the panels and two differing lengths and wherein the male couplers are the shorter of the two lengths wide. The panel couplers of the crosspieces are in plane extensions of the crosspieces. Furthermore, the male couplers are configured to releasably couple with the female couplers and the panel couplers are configured to engage the crosspiece couplers. Moreover, at least one of the panels is a flexible panel configured to bow out when coupled with the other panel so that the panels and crosspiece form a structurally stable stove when coupled directly to one another.

[0010] Three-piece stoves of embodiments can be configured for flat storage. For instance, in some embodiments, the stoves comprise two flexible and substantially flat panels and substantially flat crosspiece. The panels of the current embodiment define respective male, female, and crosspiece couplers wherein the male couplers are tongues extending from the panels and are configured to be positioned at opposite ends of the stove. For their part, the female couplers defining slots in the panels. Meanwhile, the crosspiece of the current embodiment defines two panel couplers. In the current embodiment, the male couplers are configured to releasably couple with the female couplers and the panel couplers
are configured to engage the crosspiece couplers to form structurally stable stoves when so coupled.

[0011] Such flat-storage stoves can comprise a variety of features. For instance, the two panels can possess the same shape and/or the crosspiece couplers can be spaced apart from the edges of the panels. The female couplers can further define two differing lengths whereby the male and female couplers latch. For their part, the male couplers can comprise in-plane extensions of the panels and can define two differing lengths also. Moreover, the panel couplers of the crosspieces can comprise in-plane extensions of the crosspiece. In addition, or in the alternative, the as-stowed widths of the panels and the crosspieces of embodiments can be the same.

[0012] Other embodiments provide stoves and/or methods of assembling stoves. Such stoves comprise first and second panels and crosspieces. The panels of the current embodiment define in-plane male, female, and crosspiece couplers such that the male couplers can be positioned at opposite ends of the stove. In the current embodiment, the crosspieces define panel couplers. Furthermore, the male couplers of the current embodiment are configured to releasably couple with the female couplers the panel couplers are configured to engage the crosspiece couplers. Thus, the panels and crosspieces form structurally stable stoves when coupled directly to one another.

[0013] Stoves of such embodiments can further comprise various features. For instance, some stoves comprise panels which are flexible and are configured to bow out when coupled with other panels. In some stoves, the panels can be the same shape and/or the panels possess the same shape. Furthermore, if desired, the crosspiece couplers can be spaced apart from the edges of the panels. Moreover, or in the alternative, the stoves can also comprise solid pieces of fuel which are configured to be placed on the crosspieces. In some embodiments, the male couplers define two differing lengths whereby the male and female couplers latch and/or the panels and crosspieces possess the same (as-stowed) width.

[0014] To the accomplishment of the foregoing and related ends, certain illustrative aspects are described herein in connection with the annexed figures. These aspects are indicative of various non-limiting ways in which the disclosed subject matter may be practiced, all of which are intended to be within the scope of the disclosed subject matter. Other novel and/or non-obvious features will become apparent from the following detailed disclosure when considered in conjunction with the figures and are also within the scope of the disclosure.

BRIEF DESCRIPTION OF THE FIGURES

[0015] The detailed description is described with reference to the accompanying figures. In the figures, the left-most digit(s) of a reference number usually corresponds to the figure in which the reference number first appears. The use of the same reference numbers in different figures usually indicates similar or identical items.

[0016] FIG. 1 illustrates a scene involving several stoves.

[0017] FIG. 2 illustrates a perspective view of a stove.

[0018] FIG. 3 illustrates a top plan view of stove components.

[0019] FIG. 4 illustrates a side plan view of stove components.

[0020] FIG. 5 illustrates a cross sectional view of a stove taken along line AA of FIG. 1.

[0021] FIG. 6 illustrates a perspective view of a stove.

[0022] FIG. 7 illustrates a detail view of a stove.

[0023] FIG. 8 illustrates a cross-sectional view of a stove taken along line BB of FIG. 6.

[0024] FIG. 9 illustrates a cross-sectional view of a stove taken along line CC of FIG. 6.

[0025] FIG. 10 illustrates a perspective view of a partially stowed stove.

[0026] FIG. 11 illustrates a flowchart of a method associated with stoves.

[0027] FIG. 12 illustrates a cross sectional view of a stove as taken along line DD of FIG. 2.

DETAILED DESCRIPTION

[0028] This document discloses stoves and related methods and more specifically, the current disclosure provides compact, lightweight, yet reliable stoves. FIG. 1 illustrates a scene involving several stoves. Among other things, FIG. 1 illustrates a scene 100, a mountain 102, a tent 104, users 106, their backpacks 108, a stowed stove 110, stove sides 112, a stove crosspiece 114, an assembled stove 116, a pot 118, and a fire 120. FIG. 1 also illustrates a heretofore-available camping stove 122 and several of its many parts: a propane bottle 124, a fuel adjustment knob 126, a grill 128, and a lid 130 to name a few. The heretofore-available camping stove 122 takes up comparatively much space, weighs relatively much, and involves quite a few components. Thus, it cannot be readily carried to remote sites such as the one depicted by FIG. 1. Moreover, each of its many parts represents a failure point in that if any part is missing or damaged the stove might be unusable or marginally functional. For instance, it is not uncommon for a user 106 (relying on such a heretofore-available camping stove 122) to forget, misplace, forget to fill, etc. the propane bottle 124. In other scenarios, the fuel adjustment knob 126 can become damaged, stuck, twisted off (and lost), etc. Thus, the heretofore-available camping stove 122 can be rendered useless or, perhaps, stuck at one fuel flow (and “temperature”) setting. Furthermore, the grill 128 can likewise be lost or damaged causing additional/alternative restrictions on the use of the heretofore-available camping stove 122. The cover 128 also represents a failure point in that if it is bent or damaged the ability to stow the heretofore-available camping stove 122 can be further compromised and/or other components stowed within it (for instance, the grill 128 and/or propane bottle 124) can become separated from the assembly and/or lost entirely.

[0030] Embodiments provide lighter, simpler, more compact, more durable, more reliable, easier to carry, etc. stoves than heretofore available. With such considerations (and/or others) in mind, consider scene 100. The illustrated mountain 102 indicates that the scene 100 is occurring in, perhaps, a remote area in which the users 106 might nonetheless desire a warm meal or at least a source of heat with which to warm/hot certain items. For instance, a user 106 might wish to boil a pot 118 of water over a fire. While heretofore-available camping stoves 122 might provide a source of warmth or heat, they also might be too large, heavy, cumbersome, etc. to conveniently carry to remote sites such as the one illustrated by scene 100 of FIG. 1. Of course, it is not necessary that such sites be remote to be within the scope of the current disclosure.

[0031] Furthermore, the tent 104 indicates that the users 106 might have more than just a stove to carry with them. For in some user circles there is a belief that in fragile, remote areas one should “take nothing, leave nothing.” While such beliefs are not necessary for the practice of embodiments,
they do illustrate that some users 106 have a “minimalist” approach to their activities in scenes such as scene 100. Accordingly, the weight and/or volume of many pieces of equipment which users 106 might carry can take on added significance if they are to be both carried in and taken out of these scenes 100. In addition, or in the alternative, to minimalist users 106, some users 106 might be too diminutive and/or have little desire to carry more equipment than a certain amount. Indeed, many users 106 can be expected to have little more than their backpacks 108, carrying bags, duffle bags, etc. with which to carry their equipment or, colloquially, “gear.”

[0032] Embodiments provide stoves which minimize, optimize, and/or reduce the amount of gear represented by stoves. Stoves of such embodiments can be stowed in compact, flat configurations while providing easy to assemble, strong, durable, and reliable sources of warmth/heat for cooking and/or other purposes. More specifically, stoves of embodiments can be carried in backpacks 108 and can take up no more room than a typical folded trail map. They can also weigh so little that they add little or no appreciable weight to the backpacks 108 and/or other apparatus used to carry them. Yet they can also be durable, reliable (due at least in part to their low parts count), and/or easy and/or simple to setup and use.

[0033] As FIG. 1 further illustrates, a user 106A can carry stoves of embodiments in their backpacks 108. They can also easily extract these stowed stoves 110 from their backpacks 108 because (in part), being stowed flat, they and/or their piece-parts slide relatively easily out of even tightly packed backpacks 108. For instance, two flat stove panels 112 and a flat crosspiece 114 can be stacked one on each other and stowed in an appropriately shaped bag, pouch, satchel, or other type of enclosure. When a user 106B desires to use such stoves, they can remove the stove sides 112 and crosspiece 114 from stowage and assemble a stove. Such assembly operations can include coupling the two stove sides 112 to each other via couplers positioned on the ends of the two stove sides 112 and/or inserting the crosspiece 114 between the coupled stove sides 112. Thus, users 106C can create assembled stoves 116.

[0034] Furthermore, the user 106C can place the assembled stove 116 on the ground, a table, a rock, etc. and place a tablet of fuel, an alcohol burner, etc. in the stove. The user can then light the fuel and allow the resulting fire 120 to build for a moment before placing a pot 118 (or other cooking utensil) on the stove. Of course, the user 106C could otherwise suspend something which they wish to warm over the fire 120 in the assembled stove 116. Since the assembled stove 116 has only three parts that can be stowed together, the chances that any of the particular piece parts might become lost are low. Moreover, since the two stove sides 112 can be coupled together first and then the stove crosspiece 114 can be inserted in between the couple stove sides 112, two handed assembly is possible and can occur quickly with little room for error. Furthermore, the stove (or rather its components) can be stowed in a book or between objects with flat surfaces so that protection from mechanical abuse/damage can be easily arranged. Thus, embodiments provide simple, easy to assemble, and reliable stoves.

[0035] FIG. 2 illustrates a perspective view of a stove. More specifically, FIG. 2 illustrates a stove 200, two sidepieces 202, a crosspiece 204, a side tongue 206, a crosspiece tongue 208, a fuel tablet 210, a fire 212, and a combustion volume 214. The stove 200 of the current embodiment, as illustrated in FIG. 2, has been assembled and loaded with a fuel tablet 210. Subsequently, the fuel tablet 210 was lit thereby creating the fire 212 in the combustion volume 214. In some situations, though, a user might elect to place an alcohol burner 211 in the stove instead of the fuel tablet 210.

[0036] The assembler of the stove 200, of course, used the three component parts thereof: the two sidepieces 202 and the crosspiece 204. The two sidepieces 202 are shown as being coupled to each other and therefore bowed outward thereby creating the combustion volume 214. The crosspiece 204 is shown engaged with the panels and clamped there between by those sidepieces 202. It therefore helps hold the two sidepieces 202 in a spaced apart and/or bowed out relation. Note also that the crosspiece 204 is positioned approximately halfway between the top and bottom of the stove 200. As is disclosed further herein, such configurations lend structural stability to the stove 200 allowing it to support objects (for instance, water filled pots) weighing many times its weight.

[0037] At this juncture it might be helpful to consider aspects of the components and/or features of the stove 200 in more detail. Accordingly, the two sidepieces 202 are formed from thin gauge stainless steel (for instance 32 gauge sheets). When they are not coupled to one another they therefore tend to lie flat consuming little volume when stowed. When coupled together, the sidepieces 202, as noted elsewhere herein, bow out. That coupling between the sidepieces 202 can be by way of male and female couplers on the ends of the sidepieces 202 (and hence stove 200). In the current embodiment, those couplers are formed by the inclusion of the side tongues 206 and mating slots (not shown) in the sidepieces 202. Those side tongues 206 extend from an end of each side piece 202 a short distance (for instance 0.2 inches) and generally run for a large fraction of the width of the side pieces 202. The slots are positioned at the opposite ends of the sidepieces 202 from the side tongues 206. Moreover, they are shaped and sized in a corresponding manner so that the side tongues 206 can mate with the slots and couple the sidepieces 202 together. Further still, the side tongues 206 are long enough to extend through those slots with some margin so that they will remain engage with the other side piece 202 when they are coupled together.

[0038] In the current embodiment, the crosspiece 204 is also formed from thin gauge, stainless steel, sheet metal. The crosspiece 204 includes tongues (crosspiece tongues 208) which extend from two opposing sides of the crosspiece. They mate with corresponding shaped slots in approximately the center of the sidepieces 202. The crosspiece tongues 208 run along a substantial portion of the length of the sidepieces 202 and, more particularly, about ¼ of that length in some embodiments. Note that the crosspiece tongues 208 are long enough to engage the sidepieces 202 along their length even when the sidepieces are bowed out. The crosspiece 204 includes other features that are disclosed elsewhere herein. For instance, the crosspiece 204 provides an elevated surface on which to place fuel such as fuel tablet 210. It thus, keeps the fuel tablet 210 elevated thereby providing a breathing space beneath itself and enabling the flow of air into the stove.

[0039] Moreover, in conjunction with the sidepieces 202, it helps create the combustion volume 214. That combustion volume 214 is shielded from wind by the sidepieces 202 and to some extent the crosspiece 204. The crosspiece 204 also, by elevating the fuel tablet 210 (and thus the fire 212) pro-
vides some thermal insulation for the fire from the ground. In other words, the breathing space 216 (see FIG. 12) under the crosspiece largely eliminates conductive heat loss from the fire 212 to the ground. The remaining conduction paths (the side pieces 202) are made from stainless steel and therefore have a minimal ability to conduct heat at least as compared to other metallic materials. However, the piece parts of embodiments could be made from other materials.

[0040] FIG. 3 illustrates a top plan view of stove components. FIG. 3 generally illustrates the two sidepieces 202 and the crosspiece 204 in a disassembled, uncoupled, and/or stowed (or stowable) configuration. Accordingly, the three stove 200 components lie substantially flat without being bowed out. Also, and more specifically, FIG. 3 also illustrates crests 302, troughs 304, coupler slots 306, crosspiece slots 308, notches 310, hooks 312, a fuel holder 314, lobes 316, vents 318, and shoulders 320. With regard to the sidepieces, FIG. 3 illustrates the side tongues 206 and the corresponding slots coupler 306. FIG. 3 also illustrates the crosspiece slots 308 (on the side pieces 202) into which the crosspiece tongues 208 slide.

[0041] Each of the coupler slots 306 define two differing lengths 11 and 12 which are approximately equal to each other. However, the portion of the coupler slots 306 with the longer lengths 11 are located toward the center of the side pieces 202 with the shorter (length 12) portions being located toward the ends of the side pieces 202. In contrast, the longer portions (with length 13) of the side tongues 206 are located away from the ends of the sidepieces 202 while the shorter portions (with length 14) of the side tongues 206 are located adjacent to the ends of the sidepieces 202. The coupler slots 306 therefore form or define notches 310 (between the portions thereof with different lengths 11 and 12) and the side tongues 206 define corresponding hooks 312 (between the portions thereof with different lengths 13 and 14).

[0042] As a result, the side tongues 206 can be slid through the longer portions of the coupler slots 306. A user can then push on the ends of the partially coupled side pieces 202 to bow one (or both) of them out thereby bringing the other side tongue 206 in proximity to the other coupler slot 306. This action causes the engaged side tongue 206 to slide into the shorter portion of the coupler slot 306 (moving longitudinally relative to the side other side piece 202). When it abuts the side of the crosspiece 204 at 306 it is therefore seated in the coupler slot 306 and substantially fills the length 11 thereof with the hooks 312 caught on, engage with, hung up on, etc. in/on/near the notches 310.

[0043] The user can then insert the other side tongue 206 in the other coupler slot 306 and release the sidepieces 202 from pressure. The elasticity of the bowed out side pieces 202 will thus cause the sidepieces 202 to try to straighten out. However, this action will cause the side tongues 206 to seat in the shorter length 12 portions of the coupler slots 306. As a result, the bowed out side pieces 202 will be at least partially stowed in this coupled configuration.

[0044] With continuing reference to FIG. 3 it might now be helpful to consider the crosspiece 204 of the current embodiment in further detail. More specifically, the crosspiece 204 defines a fuel holder 314, a pair of lobes 316, and several vents 318. These features of the crosspiece 204 can be formed by stamping a piece of sheet metal. More specifically, the fuel holder 314 can be a slightly depressed (or elevated) portion of the crosspiece located more or less centrally on the crosspiece 204. Its shape can correspond to commonly available fuel tablets 210 if desired. The lobes 316 of the crosspiece 204 can extend longitudinally from the center of the crosspiece 204 and can play a role in forming or defining the combustion volume 214 and breathing space 216 (somewhat similar to the combustion volume 214 of the current embodiment of the stove 200 of the current embodiment. The vents 318, meanwhile, allow air to communicate between that breathing space 216 and the combustion volume 214. They can be located across the crosspiece 204 but, in some embodiments, are concentrated around and distributed about the fuel holder 314 to provide air to the fuel tablet held therein/thereon.

[0045] As noted elsewhere herein, the crosspiece tongues 208 can extend from opposite sides of the crosspiece 204 a distance sufficient to remain engaged with the sidepieces 202 when inserted in the crosspiece slots 308 of the sidepieces. Moreover, the bowed out side pieces 202 will press against the shoulders 320 formed between the crosspiece tongues 208 and the central body of the crosspiece 204. With the crosspiece tongues 208 seated in the crosspiece slots 308 (of the side pieces), the crosspiece 204 will therefore hold the stove 200 in a structurally stable configuration as illustrated by FIG. 2.

[0046] With regard to the crests 302 and troughs 304 of the sidepieces 202, these features allow the combustion volume 214 to breathe and/or vent exhaust from the fire 212 from the stove 200. More specifically, even with a pot 118 covering the top of the stove 200, the troughs 304 provide vent spaces underneath the pot 118. Meanwhile, the crests 302 provide a place to rest the pot 118 and also provide structural support thereto. Of course, the crests 302 and troughs 304 provide similar functionality on the other side of the sidepieces 202. For instance, on the bottom of the stove 200 a breathing space 216 similar in some ways to the combustion volume 214 is formed by the side pieces 202 and the crosspiece 204 with the troughs 304 allowing that space to breathe. The crests 202, moreover, can rest on the ground thereby providing structural support to the stove 200 and any objects which might rest on top of it. Note also that the crests 302 and troughs 304 create a notched, crenelated, arcuate, etc. edge which users might find aesthetically pleasing.

[0047] FIG. 4 illustrates a side plan view of stove components. More specifically, FIG. 4 shows that the side pieces 202 of the current embodiment are flat pieces of shaped sheet metal. The crosspiece 204 is also illustrated as being substantially flat although the fuel holder 314 of the crosspiece 204 can define an area of the crosspiece 204 which departs slightly from its otherwise planar or flat nature. Indeed, that amount can be just enough to keep a fuel tablet 210 in place in the fuel holder 314 as it burns from its initial shape and size until it essentially vanishes at the end of its life.

[0048] FIG. 5 illustrates a cross-sectional view of a stove as viewed along line AA of FIG. 2. Generally, FIG. 5 illustrates two coupled side pieces 202 clamping a crosspiece 204 of the current embodiment in place to form a structurally stable stove 200. Note that the side tongues 206 are engaged in the coupler slots 306 and the crosspiece tongues 208 are engaged in the crosspiece slots 308. Moreover, the sides of the crosspiece slots 308 are abutting and pressing against the shoulders 320 of the crosspiece 204 of the current embodiment.

[0049] FIG. 5 also illustrates that the lobes 316 of the crosspiece 204 extend from the center of the crosspiece 204 out into the volume defined by the bowed out side pieces 202. However, in the current embodiment, they extend just far enough to remain spaced apart from the areas of the two side
pieces 202 which define the couplers (or the side tongues 206 and coupler slots 306). Moreover, the lobes 316 remain spaced apart from the side pieces 202 along their entire lengths although embodiments are provided wherein the lobes 316 abut the side pieces 202 to varying degrees. Nonetheless, in the current embodiment the lobes 316 of the crosspiece 204 and the bowed out, coupled side pieces 202 define a pair of somewhat convex/concave spaces 502 between themselves.

While a fire 212 burns in the stove 200, therefore, ambient air will be drawn in through the vents defined by the troughs 304 near the bottom of the stove 200. As air continues to be drawn by the draft created by the fire 212, the air will rise through the vents 318 of the crosspiece 204 as well as through the spaces 502. Some oxygen in the air will react with the fuel tablet 210 thereby creating the fire and heat which power the draft. The resulting hot gases (or exhaust) will rise and/or circulate in the combustion volume 214 underneath the pot 118. A flow rate of the exhaust proportional to the air drawn in and/or fuel being consumed can then exit via the vents defined by the troughs 304 along the top of the stove 200 and/or the pot 118.

FIG. 6 illustrates a perspective view of a stove. Again, the side pieces 202 are coupled together and bowed out accordingly. Moreover, the side pieces 202 have the crosspiece 204 clamped between them. In addition, the notch 310 of one side piece 202 is seen engaging the hook 312 of the other side piece 202.

FIG. 7 illustrates a detail view of a stove while FIG. 8 illustrates a cross-sectional view of a stove taken along line BB of FIG. 6. It too shows the side tongue 206 of one side piece 202 extending through the coupler slot 306 of the other side piece 202. Note that the side tongue 206 will tend to abut the outer edge of the coupler slot 306 due to the torsional force tending to cause the side pieces 202 to return to their flat, planar (rather than bowed out, curved, etc.) condition.

FIG. 9 illustrates a cross-sectional view of a stove taken along line CC of FIG. 6. The drawing shows the crosspiece tongue 208 extending through the crosspiece slot 308 of one of the side pieces 202. Moreover, the edges of the crosspiece slot 308 are shown abutting the shoulders 320 of the crosspiece due to the torsional force in the side pieces 202.

FIG. 10 illustrates a perspective view of a partially stowed stove. More specifically, FIG. 10 illustrates a pouch 1000 holding the two side pieces 202 and one crosspiece 204. While both side pieces 202 are shown extending from the pouch, one side piece 202 extends further than the other and is shown being behind and/or under the other side piece 202. FIG. 10 also illustrates the crosspiece 204 extending from the pouch 1000. However, the pouch 1000 of the current embodiment is long enough to accommodate the entire length of both side pieces 202 and that of the crosspiece 204. In addition, the pouch 1000 can be wide enough to accommodate the widest piece of the stove 200 whether it is one (or both) of the side pieces 202 or the crosspiece 204. In some embodiments, all three pieces have the same (as-stowed) width with the pouch being sized accordingly. Of course, the pouch 1000 can be deep enough to accommodate the thickness of the three pieces (the two side pieces 202 and the one crosspiece 204 being stacked one on another).

FIG. 11 illustrates a flowchart of a method associated with stoves. In accordance with the current embodiment, the method 1100 can begin with obtaining sheets of sheet metal with which to form the three pieces of stoves 200. See reference 1102. These three stove pieces (two side pieces 202 and crosspiece 204) can be formed from the same sheet and, accordingly, can be formed in parallel with one another. Although, in some embodiments they can be formed in separate operations as illustrated by reference 1104 and 1106. Moreover, these stovetop pieces can be formed by stamping, cutting, and/or punching the sheet metal to form the various features of the pieces. For instance, the overall shapes of the side pieces 202 and crosspiece 204 (including the fuel holder 314) can be performed with a die that both cuts the pieces as well as molding the fuel holder 314. Thus, the crosspiece slots 306, crosspiece slots 308, and vents 318 can be formed while the side tongues 206, crosspiece tongue 208, the crests 302, the troughs 304, lobes 316 etc. are formed. See references 1108 and 1110. In addition, the pouch 1000 can be formed by, for instance, sewing or otherwise joining some selected material together as illustrated at reference 1112.

Method 1100 can continue with the three pieces of a given stove 200 being stowed in a pouch 1000. See reference 1114. One or more of these stowed stoves 200 can be transported to a distribution point, sold/given to users, and then carried conveniently in a backpack or other handy device to some remote location. See reference 1116. At some point, a user can extract the stowed stove 200 from the container in which it might have been carried as indicated at reference 1118.

With continuing reference to FIG. 11, the user can begin assembling the stove 200. For instance, the user can engage one of the side tongues 206 with the coupler slot 306 of the other side piece 202 as indicated at reference 1120. Moreover, the user can press on the ends of the side pieces 202 while bringing the other side tongue 206 into the vicinity of the other coupler slot 306. This action can cause the partially coupled side pieces 202 to bow out (see reference 1122). The user can also engage the still free side tongue 206 with the still empty coupler slot 306 as indicated at reference 1124. The user can then release the ends of the side pieces 202 allowing the side tongues 202 to slide across the space defined by the respective coupler slots 306. This action can cause the notches 310 and hooks 312 to engage each other and releasably couple the side pieces 202 together. See references 1126 and 1128.

Method 1100 can also include the user inserting the crosspiece 204 between the coupled (and bowed out) side pieces 202. This action might include opening the bowed out side pieces 202 a bit to accommodate the width of the crosspiece 204 as measured across the crosspiece tongues. As well, it can include inserted one of the crosspiece tongues 208 through one of the crosspiece slots 308 of one of the side pieces 202. The user can also push/move the crosspiece 204 so that the other crosspiece tongue 208 can then be inserted through the other crosspiece slot 308. See reference 1130. The user can then set the stove 200 down and release any force that the user might still be exerting on the side pieces 202 and/or the crosspiece 204 as indicated at reference 1132. If desired, the user can confirm and/or adjust the orientation of the stove so that the combustion volume 214 is pointing up and/or so that the fuel holder 314 forms a small depression in the crosspiece 204. In this manner, the fuel tablets 210, when positioned in the fuel holder 314, will tend to stay centered in the fuel holder 314 rather than sliding, translating, moving, etc. to one side of the stove 200 or the other.

Thus, the user can place a fuel tablet 210 in the stove 200 (in the fuel holder 314) and light it. The user can also
place a pot 118 on the stove 200 and warm, heat, cook, etc. food with the stove 200. See reference 1134. Furthermore, method 1100 can be repeated in whole or in part as indicated by reference 1136.

[0060] Embodiments provide compactly stowable, lightweight stoves for use in a variety of remote locations (as well as other locations). Stoves of many embodiments can be formed by one manufacturing activity such as using a single die to cut the pieces thereof, while punching out various features, and or molding others. Stoves of many embodiments can be structurally stable and support many times their weight. Furthermore, while certain terms (for instance, “top,” “bottom,” “up,” “down,” “length,” “width,” “thickness,” “side,” etc. have been used herein, these terms are used merely for the sake of convenience. They do not imply that the stove 200 (or its piece parts) must be in any particular orientation and are therefore non-limiting. Nonetheless, the current disclosure provides simple, compact, lightweight, durable, and reliable stoves.

CONCLUSION

[0061] Although the subject matter has been disclosed in language specific to structural features and/or methodological acts, it is to be understood that the subject matter defined in the appended claims is not necessarily limited to the specific features or acts disclosed above. Rather, the specific features and acts described herein are disclosed as illustrative implementations of the claims.

1. A stove comprising:
   first and second panels defining respective male, female, and crosspiece couplers, the male couplers being configured to be positioned at opposite ends of the stove wherein the female couplers define coupler slots in the panels and two differing lengths, wherein the male couplers further comprise in-plane extensions of the panels and are about the shorter of the two lengths wide; and
   a crosspiece defining first and second panel couplers which are in-plane extensions of the crosspiece wherein the male couplers are configured to releasably couple with the female couplers and wherein the panel couplers are configured to releasably couple with the crosspiece couplers wherein at least one of the panels is a flexible panel configured to bow out when coupled with the other panel and whereby the panels and crosspiece form a structurally stable stove when so coupled directly to one another.

2. A three-piece compact stove configured to be stowed in a flat configuration, the stove comprising:
   first and second flexible and substantially flat panels defining respective male, female, and crosspiece couplers wherein the male couplers are tongues extending from the panels and are configured to be positioned at opposite ends of the stove, the female couplers defining slots in the panels; and
   a substantially flat crosspiece defining first and second panel couplers wherein the male couplers are configured to releasably couple with the female couplers and wherein the panel couplers are configured to engage the crosspiece couplers whereby the panels and crosspiece form a structurally stable stove when so coupled directly to one another.

3. The stove of claim 2 wherein the first and second panels possess the same shape.

4. The stove of claim 2 wherein the crosspiece couplers are spaced apart from edges of the panels.

5. The stove of claim 2 wherein the female couplers further define two differing lengths whereby the male and female couplers latch.

6. The stove of claim 2 wherein the male couplers further comprise in-plane extensions of the panels.

7. The stove of claim 2 wherein the male couplers define two differing lengths whereby the male and female couplers latch.

8. The stove of claim 2 wherein the panel couplers further comprise in-plane extensions of the crosspiece.

9. The stove of claim 2 wherein the panels define a first width and wherein the crosspiece defines a second width and wherein the first and second widths are the same.

10. A stove comprising:
    first and second panels defining respective male, female, and crosspiece couplers, the male couplers being configured to be positioned at opposite ends of the stove; and
    a crosspiece defining first and second panel couplers wherein the male couplers are configured to releasably couple with the female couplers and wherein the panel couplers are configured to engage the crosspiece couplers whereby the panels and crosspiece form a structurally stable stove when so coupled directly to one another.

11. The stove of claim 10 wherein at least one of the panels is a flexible panel configured to bow out when coupled with the other panel.

12. The stove of claim 10 wherein the first and second panels possess the same shape.

13. The stove of claim 10 wherein the crosspiece couplers are spaced apart from the edges of the panels.

14. The stove of claim 10 further comprising a solid piece of fuel configured to be placed on the crosspiece.

15. The stove of claim 10 wherein the female couplers define slots in the panels.

16. The stove of claim 15 wherein the female couplers further define two differing lengths whereby the male and female couplers latch.

17. The stove of claim 10 wherein the male couplers further comprise in-plane extensions of the panels.

18. The stove of claim 10 wherein the male couplers define two differing lengths whereby the male and female couplers latch.

19. The stove of claim 10 wherein the panels define a first width and wherein the crosspiece defines a second width and wherein the first and second widths are the same.

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